

REMARKS/ARGUMENTS

In response to the outstanding Office Action, the Examiner's objections to the drawings have been carefully considered and appropriate amendment to the specification has been made to correct reference numerals where necessary and to add additional reference numerals to correct the basis for the Examiner's objection. Also, claims 1-3 and 9-13 have been canceled, the remaining claims amended to present the claimed subject matter in better form and new claims 14-18 have been added. In that regard, the amendments to the remaining claims include providing a better antecedent basis for said circuit in claim 6, in accordance with the Examiner's rejection thereof under 35 USC 112.

Because of the cancellation of claims, only rejections of any of claims 4-8 need to be considered. In that regard, claims 4, 5 and 7 were rejected under 35 USC 103(a) as being unpatentable over Rofougaran, in view Arnstein, further in view of Magoon. The Examiner draws attention to the square-law rectifiers used in the transceiver of Rofougaran. However, it should be noted that those square-law rectifiers are not used in the signal path between an input signal and a signal provided to a transmission antenna, but rather are part of a received signal strength (RSSI) circuit. Accordingly, they are not relevant to the present invention. Thus while the Examiner acknowledges that Rofougaran does not expressly disclose the use of a square root circuit, it is respectfully submitted that Rofougaran also does not disclose the use of a squaring circuit in the signal path between an input signal and a transmission antenna. Also, the Examiner refers to Arnstein as disclosing a signal processing circuit that performs the square root function using either a digital or an analog technique. It is respectfully submitted, however, that in Figure 6 of Arnstein, the signal from the analog to digital converter 86 is first raised to a complex power, then filtered, then a complex root is taken. In the present invention, a square root is first taken, and later, the signal is squared, just the reverse of Arnstein. Further, it should be noted that Figure 6 of Arnstein does not relate to a direct conversion transmitter, but rather relates to a receiver. In that regard, note that multiplier 94 of Figure 6 is connected to demodulator 84 of Figure 5, "where it is demodulated and decoded to produce the unmodulated communication signal." (col. 11, lines 1-5) Thus Arnstein is relevant only for showing some individual elements of the present invention, though those elements are not interconnected as in the present invention, are not used as part of signal processing in a transmitter, and do not achieve the advantages of the present invention (see paragraph 0021 of the application). Accordingly Arnstein, like Rofougaran, is of background interest only.

Finally, the Examiner acknowledged that neither Rofougaran nor Arnstein expressly discloses the use of a local oscillator that provides one half of the transmission frequency, and for that refers to Magoon. However, claim 4 has been amended to make clear that the modulator operates on a modulation frequency of one half RF to convert the input signal to one half RF. This is to be distinguished from Magoon, wherein it is clearly stated that if the LO 24 operates at one-half the frequency of the information signal f_{rf} , then the LO signals must be effectively doubled in frequency to achieve direct conversion. (col. 3, starting on line 20) Thus, reconsideration of the rejection of claim 4 is respectfully requested.

With respect to the rejection of claim 5, the Examiner refers to Rofougaran as disclosing the presence of Gilbert cells acting as mixers in the transceivers, though it is noted that that reference is to the use of Gilbert cells in the receiver side, not in the transmitter.

Regarding the rejection of claim 7, this claim is believed allowable as depending on a now allowable claim and as providing greater specificity to the overall claimed combination. Similarly, claim 6 is believed allowable as depending on an allowable claim and as providing greater specificity to the claim combination.

New claims 14-18 are similar to claims 4-8, though do not include the variable gain amplifier of Figure 4. They do include, however, all of the novel features of claims 4-8 and all of the foregoing arguments for patentability of claims 4-8 as amended equally apply to these new claims.

Finally it was noted that the Examiner did not consider two prior art Russian references, probably because translations were not previously submitted. Translations of those references are being submitted herewith, and accordingly, consideration of these references is also requested.

Accordingly, for the foregoing reasons, it is believed that all claims are now in condition for allowance.

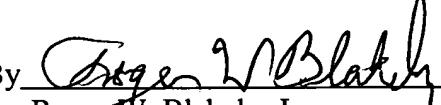
CONCLUSION

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Dated: 08/12/2005

By 
Roger W. Blakely, Jr.
Reg. No. 25,831
Tel.: (714) 557-3800 (Pacific Coast)

Attachment

12400 Wilshire Boulevard, Seventh Floor
Los Angeles, California 90025

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Jessica A. Clark 8/12/2005
Date

Amendments to the Drawings:

The attached sheet of drawings includes changes to Figure 2. This sheet, which includes Figures 1 and 2, replaces the original sheet including Figures 1 and 2

In Figure 2, $Y=X_1 \cdot X_2=X^2$ has been changed to $Y=X_1 \cdot X_2=X^2$.

Attachment: Replacement Sheet